REMARKS/ARGUMENTS

1.) Claim Amendments

The Applicant has amended claims 1-3, 6, 10, 20, 25-27, 32, 41, 43 and 45 and cancelled claims 12, 33, 46 and 47. Accordingly, claims 1-11, 13-32 and 34-45 remain pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2.) Examiner Objections – Specification

The Examiner objected to the title of the invention as being not descriptive. The Applicant submits herein an amended title as suggested by the Examiner.

The Examiner also objected to the abstract of the disclosure for not being submitted on a separate sheet in accordance with 37 C.F.R. §1.52(b)(4). Although this application is a national stage application filed under 35 U.S.C. §371, which is not subject to the requirements of 37 C.F.R. §1.52(b)(4), the Applicant submits herewith a copy of the abstract on a separate sheet.

3.) Examiner Objections - Claims

The Examiner objected to claims 1-3, 10, 12, 26-27, 32-33, 43 and 45-46 for not including a colon after the preamble. The Applicant has amended those claims as suggested by the Examiner.

4.) Claim Rejections – 35 U.S.C. §112

The Examiner rejected claims 1, 25, 41 and 47 as being incomplete for "omitting essential steps, such omission amounting to a gap between the steps." The Applicant has cancelled claim 47 and, therefore, the rejection relating thereto is moot.

In order to expedite examination, the Applicant has amended, without prejudice or disclaimer, claims 1, 25 and 41 to include the subject matter of claims 12, 33 and 46, respectively, which specifically recite the functions, or means for such functions, that the Examiner believes were missing from the independent claims. In addition, the Applicant has amended claim 1 to explicitly recite that the check token is sent to the second unit;

that limitation was inherent in the original claim and, therefore, does not constitute new subject matter. The Applicant has also amended claim 11 to include the step of "deleting the password and the token secret after the usage thereof in the first unit," which is a subset of the subject matter of claim 2 and is described in paragraph 39 of the specification.

The Examiner also asserted that the omitted steps include "[h]ow the authentication token of the first unit is used with the password to determine the check token for the second unit since it is mentioned in [the] previous [claim] step that 'each *authentication* token is irreversibly determined by the password' only." (emphasis added) The Examiner then states that "[f]or examining purposes, hereinafter *check* token will be considered to be determined based on the password only" (emphasis added), which interpretation the Examiner then subsequently uses as the basis of the claim rejections under Section 103. The Examiner's interpretation is incorrect and the Applicant does not believe there is any contradiction between the claim limitations.

According to the principles of the claimed invention, individual *authentication* tokens assigned to units in a group of at least two units associated with a common password are irreversibly determined by a password. As clarified by the amendments to claim 1, a password inputted by a user of a first unit and an authentication token of the first unit are used to determine a *check* token for a second unit. This is accomplished by first determining, at the first unit, a token secret using the authentication token of the first unit and the inputted password; the *check* token for the second unit is then created based on the token secret and the password. The *check* token is then sent to the second unit where it is compared with the *authentication* token of the second unit; if they are the same, then the user of the first device is considered authenticated.

5.)   Claim Rejections – 35 U.S.C. §101

The Examiner rejected claim 47 on the asserted basis that it was directed to non-statutory subject matter. In order to expedite examination, the Applicant has cancelled claim 47 and, therefore, the rejection thereof is moot.

6.)   Claim Rejections – 35 U.S.C. §103(a)

The Examiner rejected claims 1, 10-15, 18, 21, 25, 32-34, 37, 39, 41, 45-46, and 47 as being unpatentable over Brainard, *et al.* (U.S. Patent No. 7,363,494) in view of Schutzer (U.S. Patent Publication No. 2002/0053035); claims 12, 26 and 42 as being unpatentable over Brainard, Schutzer and Uskela (U.S. Patent No. 6,721.886); claims 3, 5, 6, 27, 29-30 and 43 as being unpatentable over Brainard, Schutzer and Hauser, *et al.* (U.S. Patent No. 5,778,065); claims 4 and 28 as being unpatentable over Brainard, Schutzer, Hauser and Aiello, *et al.* (U.S. Patent No. 6,397,329); claims 7-8, 31 and 44 as being unpatentable over Brainard, Schutzer, Hauser and Matsumoto (U.S. Patent No. 6,215,877); claim 9 as being unpatentable over Brainard, Schutzer, Hauser, Matsumoto and Gunter, *et al.* (U.S. Patent No. 6,885,388); claims 16-17, 23, 35-36 and 40 as being unpatentable over Brainard, Schutzer and Jackson, *et al.* (U.S. Patent No. 4980542); claims 19-20, 24, and 38 as being unpatentable over Brainard, Schutzer and MacKenzie (U.S. Patent No. 7,076,656); and claim 22 as being unpatentable over Brainard, Schutzer and McDowell, *et al.* (U.S. Patent No. 6,668,167).

The Applicant has amended independent claims 1, 25 and 41 to include the subject matter of claims 12, 33 and 46, respectively, which have been cancelled. Accordingly, the Applicant will address the rejections of claims 1, 25 and 41 in view of the Examiner's stated reasons for rejection of claims 12, 33 and 36.

Claim 1, as amended to include the limitations of claim 12, recites:

> 1.   A method for password-based authentication in a communication system including a group of at least two units associated with a common password, comprising the steps of;
> assigning individual authentication tokens to the respective units in the group based on the password such that each authentication token is irreversibly determined by the password;
> determining, at a first unit, a check token for a second unit based on the password inputted by a user of said first unit and the authentication token of the first unit, wherein the step of determining the check token comprises the steps of;
> determining, at the first unit, a token secret using the authentication token of the first unit and the password; and,
> creating, at the first unit, the check token for the second unit based on the token secret and the password;
> sending the check token to the second unit; and,

> comparing, at the second unit, the check token with the authentication token of the second unit for authentication of the first unit towards the second unit, wherein said user of said first device is authenticated if said check token is the same as said authentication token of said second unit. (emphasis added)

As described *supra*, the claimed invention is characterized by individual **authentication** tokens, assigned to units in a group of at least two units associated with a common password, that are irreversibly determined by a password. A password inputted by a user of a first unit and an authentication token of the first unit are used to determine a **check** token for a second unit. This is accomplished by first determining, at the first unit, a token secret using the authentication token of the first unit and the inputted password; the **check** token for the second unit is then created based on the token secret and the password. The **check** token is then sent to the second unit where it is compared with the **authentication** token of the second unit; if they are the same, then the user of the first device is considered authenticated. The claimed combination of elements and functions is neither taught, nor suggested, by Brainard or Schutzer, either alone or in combination.

As noted *supra*, the Examiner's interpretation that "**check** token will be considered to be determined based on the password only" is incorrect; rather, it is the individual authentication tokens of each unit in a group which are irreversibly determined by a common password. The authentication system taught by Brainard is a conventional client-server, or monolithic, authentication system. In contrast, the Applicant's invention is directed to a distributed solution; any device can authenticate itself against any other device in the system. According to the teachings of Brainard, a user, or a group of users, can be authenticated against a central server, but they cannot be authenticated directly against other member users/devices. Using Applicants' invention, however, a common password associated with a group of units allows any unit to be authenticated against another unit that is a member of a group without the need for a common authentication server, such as verification computer 450 taught by Brainard.

Furthermore, as acknowledged by the Examiner, Brainard fails to disclose assigning individual authentication tokens to the respective units in a group. To overcome that deficiency, the Examiner looks to the teachings of Schutzer. The Examiner states that Schutzer teaches providing an authentication token to a user during a registration process. Schutzer does not, however, teach assigning *individual* (*i.e.*, unique) authentication tokens to the respective units in a group based on a password <u>such that each authentication token is irreversibly determined by the password</u>. Therefore, Schutzer fails to overcome the deficiencies in the teachings of Brainard.

Therefore, for the foregoing reasons, claim 1 is not obvious over Brainard in view of Schutzer. Whereas independent claims 25 and 41 recite analogous limitations, they are also not obvious in view of those references. Furthermore, whereas claims 2-11 and 13-24 are dependent from claim 1, claims 26-32 and 34-40 are dependent from claim 25, and claims 42-45 are dependent from claim 41, and include the limitations of their respective base claims, they are also not obvious over those references, or in combination with any of the further references cited by the Examiner.

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CONCLUSION

In view of the foregoing amendments and remarks, the Applicant believes all of the claims currently pending in the application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1-11, 13-32 and 34-45.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

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